

REMARKS

Entry of this amendment, and reconsideration of this application, as amended, is respectfully requested.

The claims have been amended to overcome the objections to claims 33, 49 and 52, and the 35 U.S.C. § 112, second paragraph rejections of claims 27-52. With respect to the amendment of claim 27, the Examiner is also referred to Figure 1.

Claims 27-52 were rejected as allegedly obvious over the alleged "AAPA" in view of Schuh. Applicants respectfully traverse.

Turning first to the secondary reference, Schuh relates to the contacting of piezo actors, but in a manner entirely different from the invention, and not by making use of the present invention. Schuh describes the arrangement of the electrode coatings between the piezoceramic coatings of the internal electrodes. What is described here, namely the alternate-side shrinking back of the inner electrodes at the contacting surfaces of the external electrodes, is the general state of the art, which is also to be found in the multi-layered actor of the present invention. Schuh differs from the claimed invention because, according to Schuh, the contacts of inner electrodes of equal polarity take place through angular metallization strips MS1, MS2, at opposite edges of the piezoreactor, not each time on one of the opposite surfaces. Therefore, every second internal electrode coating ends on front of one of the corners, not in front of one of the lateral surfaces, as in the multiple coating actor of present invention.

The text cited by the examiner thus describes only a constructional configuration of the connection of the external electrodes. "To connect every second electrode layer with one of the metallization strips, for example, this must be insulated against the intervening electrode layers. This occurs easily in that every other electrode layer comprises a recess in the region of the one

metallization strip, in which recess said electrode layer is not led to the metallization strip. The remaining electrode layers then comprise the recesses in the region of the second metallization strip, in order to enable a contacting with alternating polarity." (col. 1, lines 37 to 45).

The connection of the external electrodes described in the reference, however, is not comparable to the claimed invention. This constructional configuration of the connection of external electrodes to a piezo actor cannot solve the problem on which the present invention is based. This is shown at a glance by comparing the actors. The claimed invention is based on the problem of configuring the external electrodes on multi-coating actors such that the causes for crazing in the actors is prevented as far as possible, and that when cracks occur their course is controlled so that it does not lead to the destruction of the actors. The solution of the problem is achieved by the fact that the base metallization of the external electrode, which forms a flat-surface connection to the internal electrodes of equal polarity, no longer forms a continuous surface but is textured, i.e., the continuous surface is broken up by gaps and interruptions.

In contrast to Schuh, the interruptions relate to one and the same surface of the base metallization of the external electrode, not to a plurality of internal electrodes. Moreover, the gap does not serve, as in Schuh, to permit contacting with alternating polarity. The gaps serve to reduce the overall stiffness of the bond consisting of ceramic surface, base metallization and the connecting layer, thereby reducing crazing in the actor and increasing the strength of adherence of the external electrode, thereby also enhancing the certainty of the contacting.

In Schuh, there is no reference to the fact that, in the case of external electrodes flatly applied, texturing the base metal coating can increase the strength of adherence of the external electrode and reduce the tendency toward crazing.

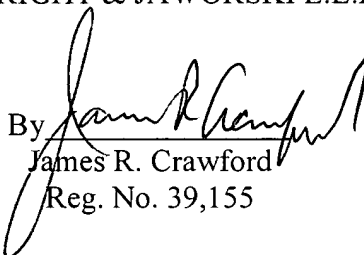
For the foregoing reasons, the "AAPA" cannot be modified by Schuh as alleged by the Examiner to render the claimed invention obvious.

In view of the foregoing, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-CERA-234-US. A duplicate copy of this paper is enclosed.

Respectfully submitted

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